AROONA STAR
BY CAILABS

How can you use the AROONA solution on POLAN architecture?

Implementing *POLAN* on an existing *multimode* cabling infrastructure

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AROONA for POLAN

An emerging network architecture

on existing multimode network

Use your existing *multimode fibers* to their full potential to implement **POLAN**

Passive Optical LAN (POLAN) is derived from PON (Passive Optical Network), a mature technology that has been used in the field by telecom operators for decades.

POLAN is an attractive and durable LAN architecture. It outperforms traditional Ethernet LANs in terms of capacity, footprint, reliability and security, all while reducing operating costs.

The advantages of AROONA for POLAN

With AROONA, there is no need for intrusive, complex or expensive deployment of single-mode optical fibers. You can now easily optimize and sustain your existing multimode infrastructure (that you thought was obsolete) to support your POLAN infrastructure using the AROONA solution.

More information is available on the APOLAN website
https://apolanglobal.org/

association for
passiveopticalLAN

A rapidly growing POLAN market

The market is still in its early stages, but more and more CIOs are taking an interest. The pace of global adoption is accelerating in verticals such as office buildings, hotels/resorts, government, military and all types of large public venues.

Multimode optical fiber in LANs:
a barrier to POLAN adoption

Most of the optical infrastructures of existing local networks are made up of multimode fiber, which is intrinsically incompatible with the single-mode operation of POLAN devices.

Single-mode cabling, and the associated labor required to implement it, represent a significant portion of POLAN[1] installation costs. This is especially the case for existing infrastructure renovation projects.

Such constraints and investments can be a deterrent to upgrading an existing network to POLAN.
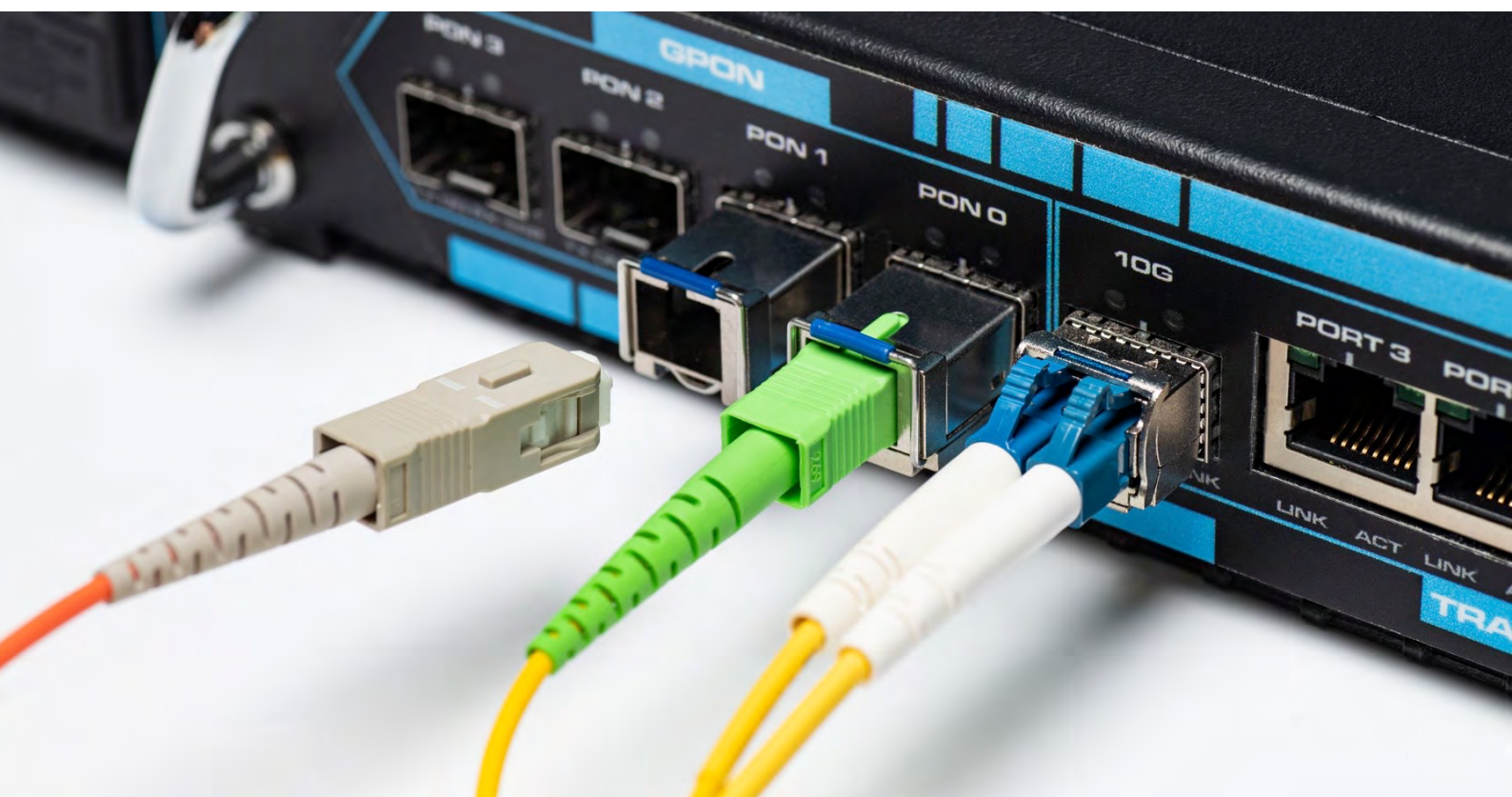
75% of the **optical fibers** used in LANs are multimode.

<20% of **POLAN projects** are deployed to replace traditional active networks.[2]

[1] https://www.lightwaveonline.com/fttx/pon-systems/article/14188263/passive-optical-lan-shines-in-cost-comparison
[2] Passive Optical LAN World Markets – Report 60163/01 - November 2020 - BSRIA

What is *AROONA?*

AROONA is an innovative, cost-effective, environmentally friendly and easy-to-install solution that *converts multimode fibers into single-mode fibers.*

● AROONA eliminates modal dispersion, **increasing the bandwidth of multimode fibers** (whatever their generation i.e. OM1 to OM5). The solution is **passive, bidirectional and transparent to the data throughput and wavelength used**. This makes it compatible with all active and passive POLAN devices.

● The solution is available as a **standard 19" 1RU rack** (4/8/12/24 FO) or as a **compact module** (1 or 2 FO) to be inserted in the existing patch panel.

● In a sustainable development approach, the **AROONA solution recycles an aging or existing infrastructure**. This saves raw materials and tons of CO_2 by avoiding the production of new optical cables.
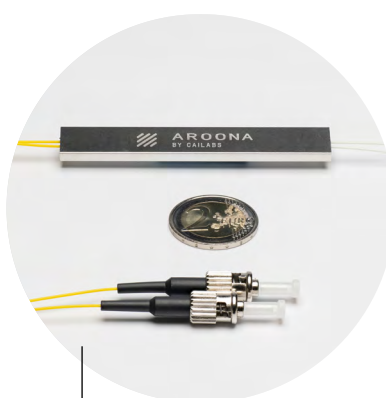
standard 19" 1RU rack   **compact module**

AROONA has received **innovation awards from the Association for Passive Optical LAN (APOLAN) and the American magazine** *Cabling Installation & Maintenance.*

This mature solution has already proven itself in recent years in a traditional LAN context. In addition to the numerous innovation awards obtained internationally, AROONA has been deployed in many local networks around the world. It is also the subject of various OEM partnerships (in particular, the OneMode range by Panduit).

ENVIRONMENTALLY FRIENDLY:
RECYCLING OF CABLING INFRASTRUCTURE

5-YEAR warranty

AROONA solution approved by French Ministry of Defense

How to use *AROONA for POLAN?*

Multimode fiber is found in main campus-wide links or in distribution links within buildings. Whatever the configuration, installing the AROONA solution at one end of the multimode link makes it compatible with POLAN devices.

AROONA is compatible with single-mode passive and active devices from major manufacturers: Tellabs, DZS, Nokia, Huawei and Cisco.

The new Tellabs FlexSym SM-to-MM range is based on Cailabs' AROONA technology:

"We have government and private customers who can now upgrade to POLAN because this passive single-mode to multimode converter allows them to use the existing multimode fiber cabling in their building. This significantly reduces the total cost of their network upgrade."
Jim Norrod, former President & CEO of Tellabs

Engineering rules

Whether it is installed before or after the optical coupler, the AROONA solution allows to upgrade the multimode section of the link and to make it compatible with any POLAN single mode equipment. Depending on the topology of the link, the installation can be done as follows:

① Patch panel   ② Fusion splice   ③ SMF patchcord
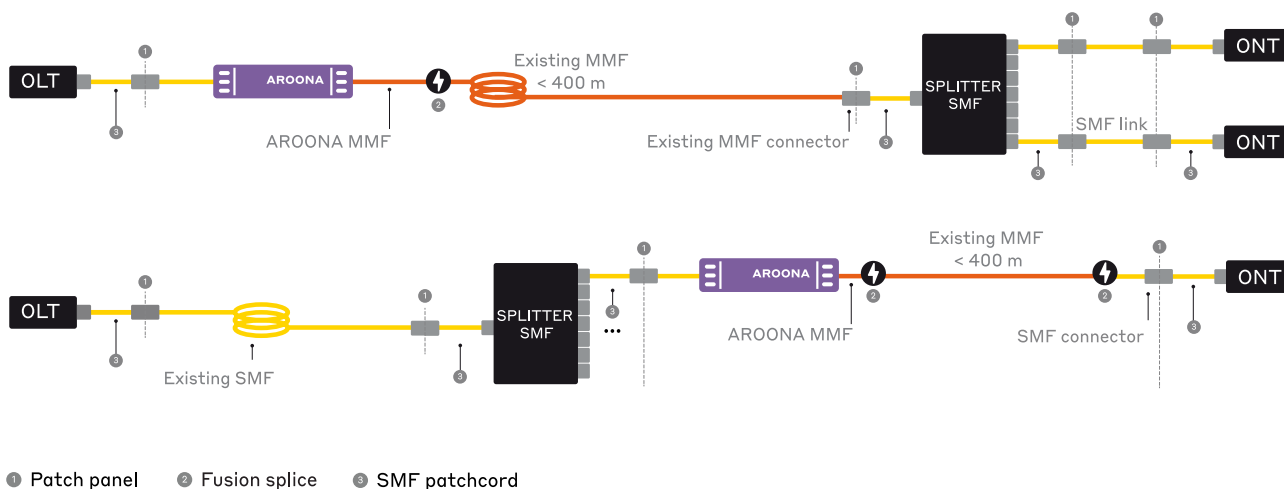
Note: the engineering rule depends on the length of the link; beyond 800m, a second AROONA unit is required at the end of the link. Please refer to the AROONA-STAR brochure for precise engineering rules for links.

When designing the network architecture and in particular when calculating the link budget, you will need to take into account globally 4 dB for the addition of the AROONA solution (modal adaptation equipment, fusion splicing, single-mode patch cords on multimode links, etc.).

This relative insertion loss nevertheless allows the use of standard POLAN coupling rates (by 8, 16, or 32) with conventionally available optical budgets (~28/29 dB) with standard GPON (class B+) or XGS-PON (class N1) transceivers.

POLAN without rewiring:
An innovative solution to give a
second life to multimode cables at
CEREMA

Under the supervision of France's ministry for ecological transition, CEREMA (Centre for Studies on Risks, the Environment, Mobility and Urban Planning) wanted to modernize its network and upgrade its LAN to a POLAN architecture.

IBM implemented Tellabs GPON equipment on an existing OM3 multimode network to reduce transition costs and minimize disruption to employees. No rewiring was required, thanks to the innovative and eco-friendly AROONA solution.

The investment cost for the migration was reduced by about 40% and the installation was easily completed in half a day—without interrupting the site's activity.

"We wanted to implement an innovative solution in line with an ecoresponsible policy. We were won over by the solution."
Gil Romand, IT Manager, CEREMA

"AROONA eliminates the risks and costs of rewiring. I am very satisfied with the product provided by Cailabs at our customer's premises."
Xavier Laureaux, IBM Network Architect

Now you have all the elements you need to exploit the full potential of your existing multimode fibers and switch to POLAN.
Contact us at **aroona@cailabs.com** if you have any questions.

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Founded in 2013, **Cailabs** is a French deep tech company which designs, manufactures and distributes innovative photonic products for telecommunications, free space transmission, industrial lasers, and LANs. A global leader in complex light shaping, its technology is currently protected by 19 patent families. Its innovative optical components are used in a variety of sectors and have contributed to several world records (notably the optical fiber bandwidth record achieved by the Japanese operator KDDI).

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